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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,311	01/18/2006	Barbara Hildegard Pause		7382

7590 03/30/2009  
Barbara H Pause  
7161 Christopher Court  
Longmont, CO 80503

EXAMINER
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STEELE, JENNIFER A

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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03/30/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,311	<b>Applicant(s)</b> PAUSE, BARBARA HILDEGARD	
	<b>Examiner</b> JENNIFER STEELE	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/16/2009 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 1 and 3-12 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "characterized" in claim 1 is a relative term which renders the claim indefinite. The term "characterized" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "characterized" means that the elastomeric compound is qualified or distinguished in that the elastomeric compound contains a crosslinking agent and phase change materials. It is not clear if the claim limitation that the polymeric compound "consists of" an elastomeric material "characterized" or distinguished by

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having a crosslinking agent and phase change materials or if Applicant is claiming a polymer consisting of only the three components of an elastomeric material, a crosslinking agent and phase change materials.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**2. Claim 1, 3-9 and 11 rejected under 35 U.S.C. 102(a) and 102(e) as anticipated by Worley (US 2003/0054141).** Claim 1 describes a membrane material for fabric structures having enhanced reversible thermal properties, said membrane comprising a

- Basic woven fabric which is coated at least on one side with
- a polymeric compound consisting of
  - an elastomeric material characterized in that the elastomeric contains
    - a cross-linking agent and
    - finely divided phase change materials and
  - that the finely divided phase change materials are crosslinked into the elastomeric structure.

Worley teaches a coated article having reverse enhanced thermal properties (ABST).

Worley teaches the article can be a woven fabric [0016].

Worley teaches continuous coatings containing phase change materials are applied to fabrics [0003]. Worley teaches the polymeric coating material can be a thermoplastic polymer or mixture of thermoplastic polymer [0046] that include polyamides, polyurethanes, rubbers such as polybutadiene, polyisoprene, polyesters, polyolefins, polystyrenes, silicon containing polymers such as polydimethyl siloxane, polycarbomethyl silane, polyfluorocarbons that are known in the art to be elastomeric [0048].

The current Application teaches in paragraph [0030] of the specification that the elastomeric materials can comprise silicone rubber, acrylate rubber, butyl rubber, nitrile rubber or chloroprene rubber and thermoplastic elastomers with fluorine, polyurethane or polyester as basic components are suitable. Therefore the polymers of the Worley are equated with the polymers of the current application.

Worley teaches depending on the particular application the coating may comprise one or more additives teaches including crosslinkers such as peroxides and azo compounds [0050].

Worley teaches embodiments where the coated article may be manufactured such that the phase change are mixed with the polymers to form a blend and embodiments where the monomers or low molecular weight polymers may be initially provided (in the blend) which upon curing, drying or crosslinking are converted to a

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polymeric material having the desired molecular weight or chain structure [0052].

Worley continues to teach that after the blend has been applied to the substrate, the blend may be crosslinked to form a coating covering the substrate [0058]. As Worley teaches crosslinking the polymer with the phase change materials and teaches crosslinking compounds such as azo compounds or peroxides, Worley anticipates the current application where the phase change materials are crosslinked into the elastomeric structure.

Worley teaches the phase change material can be dispersed in a polymeric coating [0017]. Worley teaches the phase change material can be in the raw form of bulk form, powders, pellets, granules, flakes or as a liquid in a variety of forms e.g. molten form, dissolved in a solvent and so forth [0045]. The phase change materials of powder, pellets, granules or flakes are equated with finely divided phase change materials as claimed.

As to claim 3 and 4, Worley teaches embodiments that have the coating covering one surface and Worley teaches alternatively or in conjunction, the coating can cover one or more surfaces of the substrate and that includes a bottom and a side surface in addition to the top surface [0017].

With regards to claim 5, Worley teaches the coating may be made with the phase change materials uniformly dispersed within the coating or depending on the particular characteristics, the phase change material can be varied within one or more portions of the coating. As Worley is teaching a coated substrate that can be coated on all surfaces and some of the surfaces may not contain the phase change materials, Worley

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anticipates the membrane material that has a coating on one side that does not contain a phase change material.

As to claim 6, Worley teaches the hydrocarbon compounds of n-Heneicosane, n-Eicosane, n-Nonadecane, n-Octadecane and N-Heptadecane [0037] as disclosed in Applicant's specification as being crystalline alkyl hydrocarbons.

Regarding claim 7, Worley teaches a phase change material can be a hydrated salt [0035].

As to claim 8, Worley teaches the percentage of phase change material in the coating can be up to 25%, 50%, 90% and 100% [0032].

With respect to claim 9, Worley teaches phase change materials with melting points of 22°C to 40°C [0036].

Regarding claim 11, Worley teaches fire retardants can be added to the phase change coating [0050].

### ***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**3. Claim 10 and 12 rejected under 35 U.S.C. 102(a) and 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Worley (US 2003/0054141).**

As to claim 10, Worley differs from the current application and does not teach the property of latent heat storage capacity. Worley teaches the same materials and structure as the current application therefore the property of latent heat storage capacity is presumed to be inherent in the invention of Worley. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

As to claim 12, Worley does not disclose that the coating or fabric has the property of being translucent. As Worley teaches the same structure and materials as the current application, it is presumed that the invention of Worley can have the property of translucency as claimed. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the



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reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**4. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Worley (US 2003/0054141) in view of Salyer (US 4,797,160) and Zuckerman et al (US 6,660,667).** Worley differs from the current application and does not teach the latent heat storage capacity of the phase change article. Salyer teaches phase change materials for use in building materials (ABST). Salyer teaches phase change materials of microcrystalline waxes such as hexadecane (col. 3, lines 5-10). Salyer teaches phase

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change materials with a heat storage capacity of 30-50 cal/gm. Zuckerman teaches a coating composition for fabrics of wetted microspheres containing phase change materials that include paraffinic hydrocarbons (ABST). Zuckerman teaches the coating can contain 54% phase change microspheres (col. 9, lines 33-45). Zuckerman teaches the coating has a weight per unit area of 270 gsm (col. 10, lines 33). Zuckerman does not disclose the heat storage capacity. However if both Zuckerman and Salyer employ the same phase change materials and composition as the current Application, the heat storage capacity in the units of  $\text{kJ/m}^2$  can be calculated by the heat capacity of 50 cal/gm multiplied by the density of 270 gsm to obtain a heat storage capacity of 13,770 cal/  $\text{m}^2$ . Converting calories to kJoules results in a heat storage capacity of 57  $\text{kJ/m}^2$  and in the range of up to 150  $\text{kJ/m}^2$  as claimed.

### ***Response to Arguments***

5. Applicant's amendments and arguments filed 1/16/2009 have been fully considered but they are not persuasive. Applicants amended claim 1 to state that the polymer compound "consisting of an elastomeric material characterized in that the elastomeric contains a crosslinking agent and finely divided phase change materials and that the finely divided phase change materials are crosslinked into the elastomeric structure". Applicant's amendment to limit the polymer compound to one consisting of an elastomeric material containing a crosslinking agent and finely divided phase change materials is anticipated by Worley as Worley teaches the same polymeric compounds,

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teaches a crosslinking agent can be employed and teaches phase change materials that are in particulate or finely divided form.

The claim amendment raises 35 USC 112 2<sup>nd</sup> paragraph issues and is indefinite as written. Using the term "consisting of" is an exclusive term while the term "characterized" is inconsistent with the use of "consisting of".

As the claim limitations are anticipated by Worley, the previous 35 USC 102/103 rejection over claim 1 have been revised to anticipate the claims 1, 3-9 and 11.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./  
Examiner, Art Unit 1794

/Elizabeth M. Cole/  
Primary Examiner, Art Unit 1794

3/23/2009